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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/708,518

03/09/2004

Richard E. Harper

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7590

08/03/2006

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EXAMINER

KIM, HONG CHONG

ART UNIT

PAPER NUMBER

2185

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/708,518	HARPER ET AL.	
	Examiner	Art Unit	
	Hong C. Kim	2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Claims 1-20 are presented for examination. This office action is in response to the amendment filed on 7/10/2006.

Information Disclosure Statement

2. Applicants are reminded of the duty to disclose information under 37 CFR 1.56.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Kahn et al. (Kahn) US Patent Pub. No. 2003/0126354 or Fanning US Patent No. 6,604,186

As to claim 1, 15, 19 Kahn discloses a method for operating a memory controller (Fig. 1 Ref. 20), the method comprising: receiving a current memory access request from an agent (Fig. 1 Ref. 22); determining a page management policy associated with the agent in response to the receiving (block 7 and block 29 lines 5-15) by referring to a look-up table (block 16, historical record reads on this limitation); setting the memory controller to the page management policy associated with the agent (block 29); executing the current memory access request on the memory controller (block 21,

Art Unit: 2185

read/write operation); and transmitting results of the executing to the agent (block 22, "data is typically accessed on" reads on this limitation).

Alternatively, Fanning discloses a method for operating a memory controller (col. 3 lines 35-40), the method comprising: receiving a current memory access request from an agent (col. 3 lines 35-40, a request); determining a page management policy associated with the agent in response to the receiving (Fig. 5) by referring to a look-up table (Fig. 5 Refs. 102, 514-516); setting the memory controller to the page management policy associated with the agent (Fig. 5 Ref. 106); executing the current memory access request on the memory controller (col.3 lines 35-46, page access); and transmitting results of the executing to the agent (col.3 lines 35-46, page access).

As to claim 2, Kahn discloses the invention as claimed above. Kahn further discloses the page management policy is a page-open policy (blocks 7 and 29).

As to claim 3, Kahn discloses the invention as claimed above. Kahn further discloses the page management policy is a page-close policy (blocks 7 and 29).

As to claim 4, Kahn discloses the invention as claimed above. Kahn further discloses the current memory access request includes an agent type and the determining is responsive to the agent type (block 29).

As to claim 5, Kahn discloses the invention as claimed above. Kahn further discloses the agent type is a central processing unit or an input output adapter (Fig. 1 Ref. 10).

As to claim 6, Kahn discloses the invention as claimed above. Kahn further discloses the current memory access request includes an agent workload type and the determining is responsive to the agent workload type (block 29)

As to claim 7, Kahn discloses the invention as claimed above. Kahn further discloses the current memory access request includes a unique identifier for the agent and the determining is responsive to the unique identifier (block 29).

As to claim 8, Kahn discloses the invention as claimed above. Kahn further discloses the determining a page management policy includes: calculating a probability that a future memory access request by the agent will include access to a page accessed by the current memory access request; and using the probability to determine the page management policy (block 16).

As to claim 9, Kahn discloses the invention as claimed above. Kahn further discloses the calculating is based on a history of memory access patterns associated with the agent (block 16).

As to claim 10, Kahn discloses the invention as claimed above. Kahn further discloses the probability is calculated based on a number of prior sequential memory access requests by the agent to a common page divided by a total number of prior memory access requests by the agent in a specified time interval (block 16).

As to claim 11, Kahn discloses the invention as claimed above. Kahn further discloses the probability is calculated based on a number of prior sequential memory access requests by the agent to a common page (block 16).

As to claim 12, Kahn discloses the invention as claimed above. Kahn further discloses the determining results in a page management policy of page-open if the probability is greater than or equal to a threshold value and a page management policy of page-close if the probability is less than the threshold value (block 29 trip point).

As to claim 13, Kahn discloses the invention as claimed above. Kahn further discloses the determining results in the page management policy being dynamically adapted based one or more prior memory accesses by the agent (blocks 16 and 29).

As to claim 14, Kahn discloses the invention as claimed above. Kahn further discloses the setting the memory controller is performed dynamically in response to the determining (blocks 16 and 29).

As to claim 16, Kahn discloses the invention as claimed above. Kahn further discloses the memory bank includes one or more memory devices (Fig. 1).

As to claim 17, Kahn discloses the invention as claimed above. Kahn further discloses the memory devices include one or more of dynamic random access memory, extended data out dynamic random access memory and synchronous dynamic random access memory (block 4).

As to claim 18, Kahn discloses the invention as claimed above. Kahn further discloses the memory bank includes main memory (Fig. 1).

As to claim 20, Kahn discloses the invention as claimed above. Kahn further discloses the determining a page management policy includes: calculating a probability that a future memory access request by the agent will include access to a page accessed by the current memory access request, wherein the calculating is based on a history of memory access patterns associated with the agent; and using the probability to determine the page management policy (blocks 16 and 29).

Response to Arguments

4. Applicant's arguments filed on 7/10/06 have been fully considered but they are not persuasive.

Applicant's remarks on pages 8-9 that the references not teaching determining a page management policy associated with the agent in response to the receiving by referring to a look-up table is not considered persuasive.

Kahn discloses determining a page management policy associated with the agent in response to the receiving (block 7 and block 29 lines 5-15) by referring to a look-up table (block 16, historical record reads on this limitation). Alternatively, Fanning discloses determining a page management policy associated with the agent in response to the receiving (Fig. 5) by referring to a look-up table (Fig. 5 Refs. 102, 514-516). Therefore broadly written claims are disclosed by the references cited.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
2. **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
3. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. ' 1.111(c).

5. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Kim whose telephone number is (571) 272-4181. The examiner can normally be reached on M-F 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 whose telephone number is (571) 272-2100.

Art Unit: 2185

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

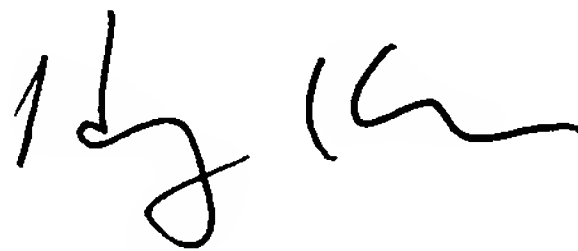
8. **Any response to this action should be mailed to:**

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to TC-2100:
571-273-8300

Hand-delivered responses should be brought to the Customer Service Window (Randolph Building, 401 Dulany Street, Alexandria, VA 22314).

HK
Primary Patent Examiner
July 31, 2006

A handwritten signature in black ink, appearing to be "16g (C)", is written over the date and examiner information.